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# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE • NOVEMBER 2, 1946



Right Straight Up!

See Page 279

A SCIENCE SERVICE PUBLICATION

1921

TWENTY-FIFTH ANNIVERSARY

1946

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3009-Q	Porro	52 mms.	25 mms.	1.00
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## MEDICINE

# 1918 'Flu Won't Repeat

Influenza viruses and humans have declared a sort of truce that won't allow more than mild epidemics unless new germ develops.

► WE SHALL NEVER have another worldwide influenza epidemic like the disastrous one of 1918, Dr. Thomas M. Rivers of the Hospital of the Rockefeller Institute for Medical Research declared at the meeting of the National Academy of Sciences.

Only if a new kind of flu germ suddenly develops from one of the two known influenza viruses and a large proportion of the world's population is susceptible to the new virus is there any likelihood in Dr. Rivers' opinion of a repetition of the 1918 influenza experience.

Something like a truce has been declared between the known influenza viruses and human beings. This is because rapid transportation of all kinds has made the world one community so far as influenza is concerned. All populations of the world are probably thoroughly "seeded" with the two viruses and people and flu viruses can live in a kind of equilibrium.

We shall probably continue to have mild and moderate flu epidemics here and there throughout the world. The flu viruses may gain the upper hand as new susceptible persons are added to the population with the birth of new babies. This may upset the equilibrium or truce between man and influenza temporarily here and there but a new truce will then be established.

Other highlights in Dr. Rivers' talk on epidemic diseases:

We do not need to worry about cholera and epidemic typhus getting started in this country because the germs would find conditions here unfavorable for their establishment and spread.

Better way than quarantine to keep diseases from spreading across international boundaries is to have a civilization and a standard of living for humans that provide poor living and travelling conditions for germs and the insects and animals that harbor and spread them.

The Island of Sardinia and some island in the South or Central Pacific might be dedicated to scientific studies of the possibilities of stopping diseases spread by mosquitoes by mosquito eradication.

In Sardinia, it might be determined just how difficult it is to wipe out the anopheline mosquitoes that spread malaria from a long-established stronghold.

In a small, unimportant Pacific island, efforts could be made to see whether anopheline mosquitoes can be established in regions where they normally do not exist.

*Science News Letter, November 2, 1946*

## NUTRITION

## Man to Know Exact Protein Requirements

► EXACTLY how much protein man himself needs will soon be known, Prof. William C. Rose of the University of Illinois predicted at the meeting of the National Academy of Sciences.

For the first time, nutritionists and physicians will be able to set protein rations for men, women and children on the basis of human needs, instead of

figuring this from what rats or other laboratory animals require.

The rat's protein requirements, long used as basis for setting human diets, may not apply to man, it now appears. Man needs only eight amino acids to fill his protein requirement instead of the nine needed by laboratory animals, Prof. Rose has already discovered.

The discovery that man can get along without histidine in his daily diet was "most unexpected," Prof. Rose stated. Histidine had long been considered one of the essential amino acids, and it is essential for rats.

Meat is not the only source of amino acids, commonly called protein building blocks. It is a good source because it contains all the ones previously considered essential. When meat is scarce, the nutritionist and housewife have to find substitutes by figuring what combinations of other foods will supply all eight essential amino acids. They can do this job better when they know exactly how much of each is needed.

Patients too sick to eat or digest meat now are frequently fed amino acid solutions by vein. If the results are not always satisfactory or if more of these expensive materials are used than need be, it is because physicians have not had exact knowledge of what is required.

*Science News Letter, November 2, 1946*



**RECEPTION**—The Smithsonian starts another 100 years. Dr. and Mrs. Alexander Wetmore receiving in the U. S. National Museum rotunda shake hands with Prof. Maurice Caullery of the French Academie des Sciences, one of the delegates at the meetings of the National Academy of Sciences and the American Philosophical Society.

METEOROLOGY

# Weather Is International

Meteorology and oceanography must be related in world-wide research. Adequate weather information must be of international scope.

► RESEARCH on an international basis is the prime need in the related sciences of meteorology and oceanography, scientists from all over the world were told at the opening session of the fall meeting of the National Academy of Sciences. You cannot intelligently discuss the weather of any one country, however small, unless you know the weather all over the world; you cannot tell the full meaning of the waves breaking on a single beach without a background of knowledge of all the oceans.

The needs of these two boundless sciences were presented by Dr. H. U. Sverdrup, director of the Scripps Institution of Oceanography at La Jolla, Calif., and Dr. C. G. A. Rossby, University of Chicago meteorologist.

Dr. Sverdrup gave particular point to his discussion by showing how oceanographers during the war made use of world-wide weather reports in preparing forecasts of ocean swells and beach waves needed by the high command in planning landings and other operations. Advance knowledge of the height of the waves on the beaches of Normandy or Okinawa depended on accurate reports of direction and force of the winds blowing hundreds of miles away, days before; and these in turn were determined in part by the movement of air masses across continental areas far remote from any ocean.

Similar applications of scientific oceanography for the needs of peaceful com-

merce, for the protection of beaches from the attack of eroding waves, for the planning of harbor works and navigation aids and for a hundred other purposes demand a well-organized and well-financed program of international scope, not only for the relatively exciting job of getting the original data but especially for the long and sometimes dull tasks of interpreting them and making the results promptly available for practical use.

Dr. Rossby called attention to the advantages already gained from international exchange of information among countries that have built up an extensive network of observing and reporting stations all around the northern hemisphere. This cooperation is possible largely through substantial agreement among meteorologists on methods and procedure, particularly through the universal adoption of the air-mass analysis method which originated in Norway a generation ago. He also suggested that it may become necessary soon to set up an equally far-flung net in the predominantly oceanic southern hemisphere, because of the long-range influence of the weather there upon events in the atmosphere nearer home.

Both speakers laid special emphasis on the great present need for training new workers for research in these two sciences, both of which are suffering from the double strain of rapid expansion and present understaffing.

*Science News Letter, November 2, 1946*

GENERAL SCIENCE

# Freedom of Science Urged

► SCIENTISTS of the world were urged to unite in combating continued maintenance of wartime secrecyes now that the guns are silent, by Sir Henry Dale, past president of the Royal Society of London, who delivered the Pilgrim Trust Lecture before the meeting of the National Academy of Sciences.

"We have surely the right and the duty to give urgent warning of any danger threatened by those policies to the integrity of science, which we, the world's scientists, should hold as a sacred

trust not for any nation but for the world," Sir Henry declared. "I hold it to be our right and our duty to unite in telling the world insistently, that if national policies fail to free science in peace from the secrecy which it accepted as a necessity of war, they will poison its very spirit, . . . that science will languish, and that all the fair promise which it offers of a harvest of human prosperity, culture and happiness will be blighted and withered.

"We need only look at Hitler's Ger-

many to see how the enslavement of science, to prepare in secret for war, can in a few years destroy much of the true scientific activity which, not long ago, stood high among the gifts of a great nation. On such a matter we must be clear and uncompromising in our attitude."

Besides bringing the force of public opinion to bear on secretive officials, scientists can make a more direct and immediate application of their principle of freedom to speak and publish, Sir Henry suggested. They can insist upon that freedom for themselves as teachers and research leaders, and they can inculcate it, even by a kind of formal vow, in the young men whom they are train-

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ing to be the scientists of the future.

Formal action along the lines suggested by Sir Henry has already been taken by the International Council of Scientific Unions, representing eight international science organizations. Dr. John A. Fleming of the Carnegie Institution of Washington told the meeting of an outline of action adopted by the Council at a general assembly in London last July. In summary, this calls upon scientific workers:

"To maintain a spirit of frankness, honesty, integrity and cooperation, and to work for international understanding;

"To promote the development of science in the way most beneficial to mankind and to exert their influence as far as possible to prevent its misuse, and

"To serve the community not only by their specialized work but by assisting as far as they are able in the education of the public in the purposes and achievements of science."

*Science News Letter, November 2, 1946*

## ELECTRONICS

## Blind Can Read by Ear

For persons without sight an electronic device translates letters into sounds, making it possible to "read" almost any printed matter.

► **BLIND PERSONS** can read by ear with a new electronic reading aid which converts printed letters into distinctive sounds for the sightless reader. The machine was demonstrated to the public for the first time at a session of the American Philosophical Society by its inventors, Dr. V. K. Zworykin, Russian-born director of electronics research at the Radio Corporation of America laboratories, Princeton, N. J., and L. E. Flory.

To read with the electronic device, the blind person scans the printed or typewritten page with a stylus that looks like a large black fountain pen. A small beam of light in the "point" of the stylus moves up and down on each letter, reflecting to a phototube that operates an amplifier tube.

A combination of five different sounds is produced for each letter as the stylus moves over the printed matter. The reader hears the "pips" through a hearing-aid-like ear attachment. Total weight of the electronic unit is only five and one-quarter pounds.

Dr. Zworykin disclosed that work is now underway on an instrument using the same principles to form the actual sound of each letter. This would spell out each word for the blind person as he scanned print with the stylus.

The electronic reading aid shown in Philadelphia requires the reader to learn a code of sounds for each letter. Blind persons in several laboratories are now being taught the new system experimentally, Dr. Zworykin reported, adding that the device is not yet being produced commercially.

the top of the letter and low frequency for the bottom of the letter. These sounds create the blind reader's sound picture of the letter.

Almost any printed or typewritten matter can be read with the instrument, contrasted with the limited number of works available in Braille for the blind today.

The electronic reading aid was developed under the Committee on Sensory Devices of the wartime Office of Scientific Research and Development. The committee is now with the National Academy of Sciences.

*Science News Letter, November 2, 1946*

## ELECTRONICS

## Electronic Tubes Speed Up Mathematical Calculations

► **ELECTRONIC "super-brains"** that will solve complex mathematical problems a million times faster than the best methods available ten years ago were forecast before the meeting of the National Academy of Sciences by Dr. John von Neumann of the Institute for Advanced Study, Princeton, N. J. This dizzying speed-up in calculating ma-



**HEARING AID**—Electronic device, developed in laboratories of the Radio Corporation of America, operates as a stylus on a printed page, translating letters into sounds.

chines will come through the substitution of electron tubes and electrical circuits for the cogs and gears of mechanical devices hitherto in use, he said.

New types of vacuum tubes, designed especially for these machines, are likely to be evolved, Dr. von Neumann predicted. Such special tubes will be needed especially for the parts of the machines that "remember" and carry over data for further operations.

The machines will require several thousand tubes each.

These electronic "super-brains" are, of course, unable to do any actual thinking. They accept problems at the hands of their human masters. But once a problem is set up they will simply run away with it, for they operate not with the speed of lightning but with the speed of light.

*Science News Letter, November 2, 1946*

#### PLANT PATHOLOGY

### Alliance Wages Warfare On Stem Rust of Wheat

► CANADA, the United States and Mexico have found it necessary to form a three-power alliance in an unending war against a sub-human enemy, the black stem rust disease of wheat, Prof. E. C. Stakman, University of Minnesota plant pathologist, told the meeting of the National Academy of Sciences.

This is because the greatest wheat-growing area of the three countries is itself international. It starts in the northern states of Mexico, runs up the map of the United States in a wide zone from Texas to Montana and the Dakotas, and extends far up into the prairie provinces of Canada. An epidemic of wheat rust can get started in Mexico, become airborne through its billions of spores, and wind up by plaguing farmers in Saskatchewan. Under other circumstances, the spores may fly with the wind from north to south.

Plant breeders are constantly at work to produce new rust-resistant varieties of wheat, but their efforts are often set at naught by the wheat rust fungus, which is constantly evolving new strains, some of which are able to attack previously resistant wheat varieties. Hence it is necessary for wheat breeders and plant pathologists of the three countries to be constantly in touch with each other, exchanging information on the movements of the enemy and sharing their means for saving the wheat.

*Science News Letter, November 2, 1946*

#### BACTERIOLOGY

## Disease Spread Studied

Germ warfare equipment and techniques developed during the war will be used to study transmission of disease germs through the air.

► EQUIPMENT developed during the war to handle the deadly "bugs" of bacteriological warfare has provided science for the first time with the means for studying the airborne transmission of the world's greatest scourges.

With the airtight chambers and elaborate equipment for washing "bugs" out of the air, University of California and Navy scientists have started a new approach to the study of such diseases as bubonic plague, influenza, psittacosis, and streptococcus infections such as rheumatic and scarlet fevers.

"We have a unique opportunity, with the war-developed equipment, to study airborne diseases under conditions which would have been impossible before the war," Dr. A. P. Krueger, leader of the new research program, says.

"The study of the transmission of these infections by air has been impossible because equipment did not exist which would eliminate the serious dangers to research personnel.

"During the war we had to develop equipment for safe handling of dangerous infectious agents, and this has

opened up a new field of great promise to medical science."

The University of California laboratories for airborne research were developed during the war when Prof. Krueger, as a captain in the Navy, led a group of scientists in the development of bacteriological warfare techniques.

To prevent infection of the researchers, experimental animals are handled in airtight chambers similar to those used in handling plutonium. Manipulation of animals and equipment is done with long rubber gloves which are sealed into holes in the chambers, a glass plate giving good visibility.

All air in the laboratories is washed through a bank of precipitrons, which separate all the "bugs" from the air, after which the air is passed over a bank of ultraviolet lights to kill any remaining disease agents. Any air which is suspect is burned in gas.

The isolation apparatus is of the type developed at the University of Notre Dame by Prof. James A. Reyniers, who served in California as an officer in the Navy during the war.

*Science News Letter, November 2, 1946*

#### AERONAUTICS

## Pressure Pattern Flying

► A NEW technique, "pressure pattern flying," is now available to air pilots on the Atlantic route from Europe. It depends upon weather reports received from planes on the route, which are compiled and rebroadcast from New York to all craft in the air.

These radio reports from the pilots, digested and edited by personnel of the U. S. Weather Bureau, are broadcast from station WSY, operated by the U. S. Civil Aeronautics Administration. The service has just been put into operation by the CAA. It comes as a result of a request from the Meteorological Committee of the Air Transport Association of America.

This new technique consists in determining the shortest flight-time path to the destination by a series of late ac-

curate reports from other pilots flying the route which locates pressure areas and enables a pilot to take advantage of the airflow circling around them.

The principle of this technique is not entirely new. It has been experimented with by the Army and Navy air forces, and by several airline companies. The new broadcast over WSY, however, marks the first time that weather information from other craft has been collected and rebroadcast for this purpose.

Pressure pattern flying is considered advisable only for long overseas or trans-continental flights. The present service covers only about 800 miles on the trans-Atlantic route, but additional frequencies are being studied to give coverage over the entire distance.

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## ORNITHOLOGY

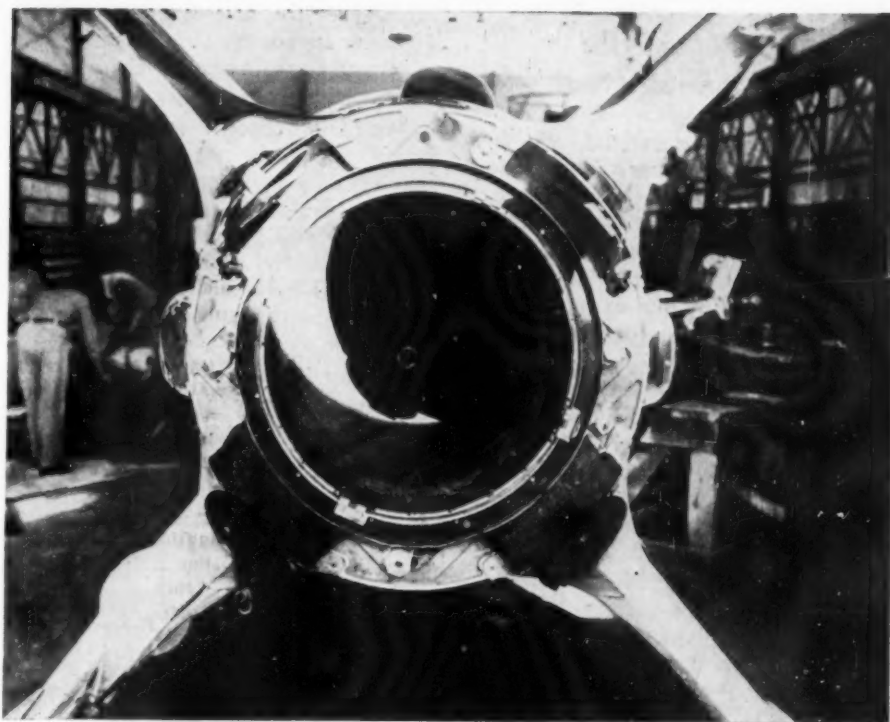
**Vertical Flight Is Nothing New to Ducks**

See Front Cover

► DUCKS may well look down scornful beaks at helicopters; vertical flight is nothing new to them. As demonstrated in the high-speed photograph of the mallard drake shown on the cover of this SCIENCE NEWS LETTER, a duck in a hurry to take off from the water goes right straight up for several feet before it begins to level off into horizontal flight.

The take-off actually starts in the water rather than on it. The bird's body is about one-third submerged, and the wings make one or two strokes into the water. Doubtless this action against a more resistant medium than air helps greatly in that first upward leap.

The cover photograph is one of several hundred that illustrate a sumptuous new book, *Prairie Wings*, in which both photography and text are by Edgar M. Queeny, with explanatory sketches by Richard E. Bishop, published by Ducks Unlimited, Inc. The artist-author is connected with the Monsanto Chemical Company; ducks are his serious hobby. It is more than just a book of magnificent duck pictures; in it a serious effort is made to understand the flight maneuvers of ducks in terms of what we know about aerodynamics.

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**V-2 ROCKET STERN**—This projectile was sent aloft recently at White Sands, New Mex., to take automatic pictures at high altitudes. Arranged around the exhaust are six airplane gun type cameras. Official U. S. Navy photograph.

## ARCHAEOLOGY

**First New World Realists**

► THE EARLIEST New World realists in art were the sculptors who 2,000 years ago carved the colossal stone heads unearthed in tropical lowlands of southern Mexico. Dr. Matthew W. Stirling, chief of the Smithsonian Institution's Bureau of Ethnology, told the Smithsonian's 100th anniversary convocation in Washington.

Five gigantic human heads were found during the past digging season. Dr. Stirling explained that the 11 heads found so far are the best preserved of all the stone monuments found in the Western hemisphere.

The same early Americans, who flourished before the time of Christ, invented the New World calendar which was adopted and complicated by the Mayas, with the earliest of whom the La Venta people were contemporary.

Two of the great stone heads discovered this year at San Lorenzo are each nine feet high. Some of the heads discovered earlier are being moved to Mexico City by the Mexican govern-

ment for permanent exhibition there.

The heads are so realistic and true to life that Dr. Stirling told an audience of world-famous academicians from many foreign countries that they are undoubtedly good portraits of what the early La Ventans actually looked like.

Later the Mayas developed a more gaudy and stylistic type of stone art, with an evident aversion to any blank spaces on their monuments which they covered with decorations. Dr. Stirling called this a mark of artistic degeneration.

The earliest date in the New World is the one corresponding to 31 B. C., carved on a monument from the Tres Zapotes site.

Eight years of archaeological exploration by a joint expedition of the Smithsonian Institution and the National Geographic Society, directed by Dr. Stirling, unearthed the new evidences of the La Venta culture, called Olmec in earlier reports. (See SNL, July 27, 1946.)

*Science News Letter, November 2, 1946*

## GENERAL SCIENCE

**Prof. Joseph Proudman Wins Alexander Agassiz Medal**

► THE NATIONAL Academy of Sciences awarded one of its highest honors, the Alexander Agassiz medal, to an English researcher on the mathematics of the oceans' tides, Prof. Joseph Proudman, F. R. S., director of the Liverpool Observatory and Tidal Institute. Since Prof. Proudman was unable to be present in person, the medal was accepted in his behalf by Sir Alfred Egerton, secretary of the Royal Society of London.

Two Americans were also presented with medals of the Academy. The Daniel Giraud Elliot Medal went to Dr. George Gaylord Simpson, paleontologist of the American Museum of Natural History. The Mary Clark Thompson medal was given to Dr. John B. Reeside, Jr., of the U. S. Geological Survey, whose field of research has been the Mesozoic of the central United States.

*Science News Letter, November 2, 1946*



## CHEMISTRY

**New Tablets Replace Army's "Canned Heat"**

► NEW trioxane heat tablets for soldiers will be tested this winter in operations in Alaska and the Aleutians. Quartermaster Corps tests have shown the new tablet burns without odors or poisonous gases and produces a steady blue flame which is not easily blown out by wind.

During World War II both paraffin and alcohol heating tablets were used, but both proved unsatisfactory. The paraffin burned with a bright flame visible for some distance and deposited soot on the container. Alcohol heating, the Army simply states, "has been eliminated as not possessing the necessary characteristics for military use."

Hexamine tablets, also used in the war, will be tested further in Alaska, but these units are more sensitive to moisture, burn brightly and produce some poisonous gases.

The new trioxane tablets are approximately three inches long, one and one-quarter inches wide and five-sixteenths of an inch thick, producing enough heat to raise the temperature of a pound of water 100 degrees Fahrenheit.

*Science News Letter, November 2, 1946*

## GEOGRAPHY

**North Magnetic Pole Believed Moved 200 Miles**

► THE NORTH magnetic pole isn't where it used to be, but just where it is now is a question scientists aren't agreed on. Since 1904, the imaginary point on the earth where the north-seeking compasses of the world's navigators point has moved at least 200 miles north and a little east or west.

Latest charts of the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, based on magnetic observations and the flight of the RAF Lancaster "Aries" in 1945, put the earth's north magnetic pole north and west in McClintock Sound or in Melville Sound, north of the Hudson Bay. Your geography book shows the classic location on the western side of Boothia Peninsula.

But other observations made on joint U. S. and Canadian Army maneuvers and by Canadian observers as far north as Fort Ross indicate the pole may actually have moved a little east and north. R. G. Madill of the Dominion Observatory in Ottawa told Science Service that

he believes the pole is now on North Somerset Island, which is north and east of Boothia peninsula in Canada's far north.

Mr. Madill expects the best answer to come when observations now being made from a U. S. Army B-29 are tabulated. Frequent flights in the area by this plane will give the latest and most accurate picture of the pole's location, Mr. Madill indicated.

Wherever the imaginary pole is, all observers are sure that it will prove to be at least 200 miles from the older location in a northerly direction.

And scientists believe there can be only one north magnetic pole. Russian scientists, a few weeks ago, claimed to have discovered another pole in Siberia, but that report is believed to have been due to mineral deposits that may create local magnetic "poles."

*Science News Letter, November 2, 1946*

## MEDICINE

**Is There Anything to Rainbow Wave Drug?**

► AMERICAN scientists are wondering whether there really is anything in the "rainbow wave" drug developed by Japanese scientists and said to be effective in speeding healing of severe burns, ulcers, frostbite, tubercular leprosy and other diseases.

The drug, also known as Koha, is derived from neocyanine. Cyanine is a dye. Some scientists, inclined to be skeptical when they first read the report on Koha issued by the Office of Technical Services, U. S. Department of Commerce, recalled that other dyes have germ-killing or stopping power. The sulfa drugs came from a dye house. So these scientists think Koha should be investigated further.

This rainbow wave drug is a light-sensitive substance which Japanese scientists produced in an effort to find a chemical resembling chlorophyll, the green coloring matter of plants. They hoped to use chlorophyll's ability to convert sunlight into energy for treatment of various diseases. They were unable to obtain active chlorophyll, and experimented with neocyanine instead.

Koha, the rainbow wave drug, is given by injection into the veins. It is said to increase the number of white blood cells, stimulate formation of new tissue and increase the survival rate of damaged tissue cells.

*Science News Letter, November 2, 1946*

**IN SCIENCE**

## MEDICINE

**Caffeine Does Not Stunt Growth**

► THE OLD fear that drinking coffee, tea or other beverages containing caffeine stunted the growth and reduced the ability to have children is banished by experiments by Drs. George Bachmann, John Haldi, Winfrey Wynn and Charles Ensor at Emory University.

It is banished, that is, if humans react like the white rats in the experiments.

The rats, from the time they were weaned, drank a sweetened beverage containing caffeine as their only source of fluid. A control group of rats drank tap water only. The amount of caffeine the rats consumed daily would be equivalent to about 34 cups of strong coffee or tea.

The rats on the caffeine beverage grew at the same rate as those on tap water. Their reproductive capacity, judged by the number of litters and number of offspring, was not impaired. The sex glands of the males showed no changes except for those natural to the aging process.

Details of the experiments are reported in the *Journal of Nutrition*, (Sept. 10).

*Science News Letter, November 2, 1946*

## MEDICINE

**Streptomycin Cures Baby Of Tuberculous Meningitis**

► A 15-MONTH-OLD baby boy, his parents' only child, has been saved by streptomycin from the almost always deadly tuberculous meningitis, Dr. Louis L. Krafchik of New Brunswick, N. J., reports in the *Journal of the American Medical Association* (Oct. 19).

The baby is one of only about 60 patients who have been cured of this disease, so far as medical records show. Even the 60 others who recovered may not all have had tuberculous meningitis. The authenticity of the diagnosis is questionable in many of the 60 cases, Dr. Krafchik states.

Five months after the start of this usually fatal disease, the baby was "clinically well," or, as the layman would put it, cured.

*Science News Letter, November 2, 1946*



# NE FIELDS

## AERONAUTICS

### Navy Has New Safety Primary Training Plane

► A SAFETY cockpit design, with the cockpit enclosed by an unobstructed one-piece bubble canopy, features a new Navy primary training plane that has just made its initial test flight.

The cockpit design is a type which the Naval Bureau of Aeronautics sponsored in order to provide a standard for all its carrier-based aircraft. The one-piece canopy gives an all-around view to both instructor and student, a factor which aids in preventing collisions.

The new training plane will be known as the XNQ-1. It was constructed by Fairchild Engine and Airplane Corporation. It is an all-metal, two-place, low-wing monoplane with tandem seating arrangement. It is powered by a Lycoming nine-cylinder radial engine rated at 320 horsepower.

The gross weight of the XNQ-1 is 3,700 pounds, and its maximum speed is estimated at 170 miles an hour. It has a wing-span of approximately 41 feet and an over-all length of nearly 28 feet. Stability and control are emphasized in its design.

*Science News Letter, November 2, 1946*

## PHYSICS

### Smoke Affects Electric Conductivity of Air

► "SMOKER'S BREATH" can have a measurable effect on the electrical conductivity of the air. The difference can be measured by suitable instruments in an extremely delicate state of electrical balance—even if the smoker has thrown away his cigarette or knocked out his pipe before entering the laboratory building.

This is one of the more spectacular aspects in a study of air conductivity reported by Dr. G. R. Wait of the Department of Terrestrial Magnetism, Carnegie Institution of Washington, in the *Journal of the Washington Academy of Sciences*.

Air is ordinarily considered almost a perfect non-conductor of electricity, but it is able to conduct very small amounts, due to the presence of ultramicroscopically small charged particles, or ions. Larger particles, such as are found in

smoke, have little direct effect because of their low mobility, Dr. Wait explains. However, they absorb the small ions, thereby lowering the net conductivity.

All kinds of smoke particles are effective in this way. The air over large cities is less conductive than that over the open country—factory smoke is the answer. Even in the country, there is likely to be a zone of changed conductivity along the highway—gasoline fumes responsible in this case. A slow over-all decline in the conductivity of ocean air through a period of years is suspected to be due to slowly increasing smokiness of the atmosphere, even far off shore.

*Science News Letter, November 2, 1946*

## MEDICINE

### Atomic Diagnosis of Breast Cancer Is Hope

► HOPE OF diagnosing some types of breast cancer through atomic medicine, thereby avoiding much unnecessary surgery, is reported in the journal, *Science* (Oct. 25), by Dr. Bertram Low-Beer, University of California Medical School physician.

The diagnosis is made with radioactive phosphorus which has been found to concentrate in malignant (cancerous) tissue. After diagnosis of cancer by ordinary clinical means, an injection containing a tiny amount of radio phosphorus is given the patient.

The Geiger counter count on the skin surface over a malignant, fast-growing tumor is at least 25% higher than over the same spot on a normal breast. Benign tumors which may not call for surgery do not show this high concentration.

There has been no previous method for determining whether a tumor is benign or malignant in many cases. Therefore operations are performed in many cases of benign tumors on the possibility that they are malignant.

Dr. Low-Beer's report is preliminary and he says more research is necessary before the method can be applied in general practice. It cannot be used for deep-seated tumors because the beta rays' penetration is too short, nor can it be used for slow-growing malignancies because the differential concentration is not large enough.

The method has been used on 25 patients just before surgery. Microscopic examination of the cancer tissue after operation bore out the atomic diagnosis in all cases except one slow-growing malignancy.

*Science News Letter, November 2, 1946*

## PHYSIOLOGY

### Severe Physical Training Can Make Chest Smaller

► PULL-UPS, push-ups and all the exercises that go into a vigorous physical-training program will increase the chest measure of a thin man with a small chest, but if you already have a large chest, it may measure less after a severe training period.

That's what Dr. Carl C. Seltzer of Harvard University discovered from measuring the chests of 272 aviation cadets before and after an eight-week schedule of physical training.

Dr. Seltzer also tested the physical fitness of the cadets and found that the big fellows whose chest measurements had dropped showed the greatest improvement in fitness. They had been overweight, and their condition improved as they lost weight. At the same time their chests measured less.

In the men with small chests, Dr. Seltzer points out in the *American Journal of Physical Anthropology*, the increase in measurement was due to improvement in the chest muscles and better posture, not to movement of the ribs.

*Science News Letter, November 2, 1946*

## INVENTION

### New Blood Transfusion Apparatus Uses Rubber Bag

► BLOOD transfusion apparatus quite different from the type generally employed in this country has just been patented by a Swiss inventor, Rudolf Bucher of Basel.

Instead of the familiar inverted bottle, Mr. Bucher uses a flexible rubber bag to contain the whole blood or plasma to be placed in the patient's vein. This permits the force of gravity, ordinarily the sole reliance for producing flow of the transfused blood, to be supplemented if desired by pressure. Pressure may be applied in several ways directly to the outside of the bag, or it may be produced by inflating a small balloon inside the bag by an ordinary syringe bulb.

Between the bag and the outlet nipple to which the customary needle-bearing rubber tube is attached is a flat filter, to insure that no bubbles or solid foreign particles get into the patient's circulation. This filter is easily removable for cleaning and sterilization.

Rights in the patent, No. 2,409,734, have been assigned to the Swiss firm of G. Laubscher and Co. of Basel.

*Science News Letter, November 2, 1946*

## NUTRITION

# Pets Must Get Proper Diet

Studies of nutrition requirements for animals help to raise healthier pets and increase knowledge of human dietary needs.

By HELEN M. DAVIS

► ARE YOUR PETS getting enough vitamins? Has your pup enough pep? Do you know what to feed the white mice Junior brought home from school? Are you prepared to take on the nutrition problems of even stranger animals, if yours is one of those households that tends to acquire a private zoo?

If you were successful in raising the chicks and rabbits that well-meaning friends gave your children last Easter, you may by this time be considering a backyard live-stock project to augment the family food supply.

Whether you raise them for food or for fun, you will want your animal family to have a well-balanced diet, with the proper vitamin content. Your problems will be, on a smaller scale, those of the laboratory people who raise small animals generation after generation, to learn which foods are best for health, for growth and for raising better babies.

Studies of the vitamin requirements of animals aid in solving not only the problems of raising the animals themselves, but also problems of human nu-

trition. We can learn from rats and mice what kinds of food we should eat. Monkeys can show us how to avoid anemia. Hamsters offer suggestions on the care of our teeth.

Small furry animals beloved by children had their day at Chicago recently when nutrition chemists held a symposium on their food needs at the meeting of the American Chemical Society. Vitamins necessary to the health and happiness of dogs and guinea pigs, white rats and mice, and their wilder cousins, cotton rats and hamsters, were the concern of experts from agricultural experiment stations, pharmaceutical factories and government laboratories. Even monkeys and chickens were included in the list of animals whose dietary needs were examined.

## Animals Need Vitamins

It is interesting to see that the vitamins required by the animals are the same as those now recognized as essential for human nutrition. Just as the careful housewife selects a well-balanced diet for her family and her pets with reasonable assurance that a varied diet of fresh foods will assure an adequate

vitamin allowance, so the people who are in charge of planning regular diets for flourishing animal colonies would employ the same system.

The people who work out the effects of single vitamin factors on diet use as a basis a diet which is completely free from vitamins so that the pure crystalline forms of the vitamin can be varied one at a time and the results studied.

It is obviously not necessary to buy vitamin pills at the drug store for your pets unless your veterinarian finds something wrong with their nutrition, but reputable manufacturers of prepared foods for animals realize the need for these food factors and the vitamin content of the animal food is usually stated on the label.

Healthy animals with bright eyes and sleek coats are the goal of nutritionists seeking complete diets. But, strange to say, although the guinea pig is the traditional laboratory animal, nobody knows exactly what its complete vitamin requirements are.

One reason for this is the individuality of the guinea pigs themselves. One pig will thrive on a diet which makes another droopy or susceptible to infections. Also, the experts believe, there are food factors not yet isolated which complicate the picture.

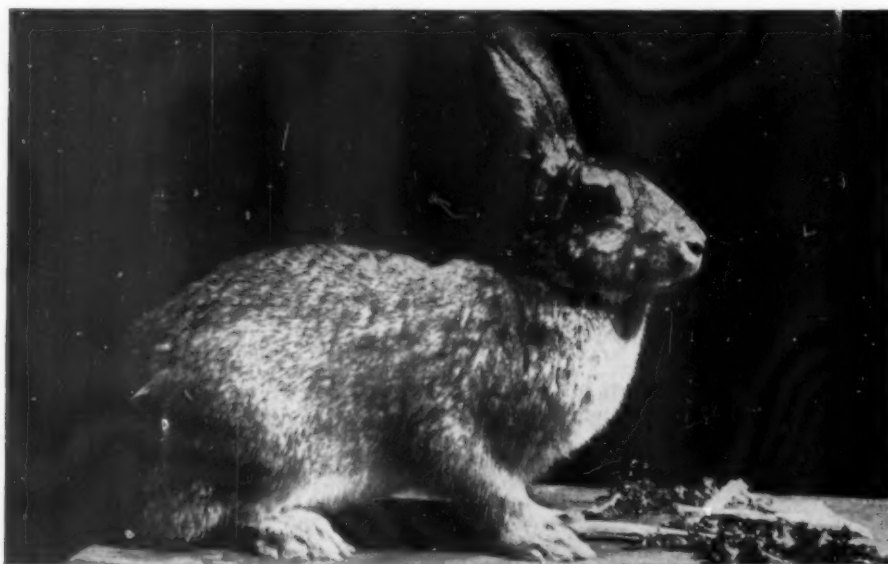
## Rats Favorable for Study

Rats and mice are favorites for nutrition studies because they have lived so long in the same houses with people that they eat the same diet. If what is good for a man is good for a mouse, the opposite should also be true. A diet that keeps a mouse in excellent condition should give us ideas about feeding habits for the human species.

"Synthetic diets" for the mouse "can be prepared with adequate supplements of known pure vitamins which give excellent growth and maintenance of adult weight," says Dr. Harold P. Morris of the National Cancer Institute, Bethesda, Md.

Of the water-soluble vitamins, thiamin, riboflavin, pantothenic acid and pyridoxin are essential for growth and maintenance of adult weight. Other factors were discussed, and symptoms were described by which both acute and chronic vitamin deficiencies may be recognized.

Like the mouse, the rat has been used



**HEALTHY BUNNY**—Pet rabbits need a well-balanced diet if they are to have bright eyes and a sleek coat.



extensively for dietary studies, and many lists of rat diets have been published. Drs. R. A. Brown and M. Sturtevant of the research laboratories of Parke Davis found wide variation in the kinds and amounts of vitamins recommended by different authors. Some of these factors are essential to the welfare of the animals, these investigators believe, while others have in some cases been added "to forestall criticism by other workers."

They find that it makes considerable difference in some cases whether the vitamin preparation is swallowed or is injected under the skin, but that the result is not the same for all vitamins. It has been found, they report, "that vitamins A and D, when injected in an oil solution, are not utilized as well as when given by mouth. Thiamin and riboflavin at low doses are utilized more efficiently by the parenteral route than by oral administration. Pyridoxin or pantothenic acid give equal response whether they are injected or given by mouth."

#### Vitamins for Chickens

Considering the importance of chickens in human diet, it is not surprising that the importance of vitamins in the diet of chickens has received detailed attention. Dr. H. R. Bird of the Department of Agriculture's Bureau of Animal Industry lists quantities of vitamins recommended by various experimenters to be included per 100 grams of diet as: vitamin A 160 International units, vitamin D 25 A.O.A.C. units, thiamin 170 micrograms, riboflavin 300 micrograms, pantothenic acid 900 micrograms, nicotinic acid 1500 micrograms, pyridoxin 300 micrograms, biotin 10 micrograms, vitamin K 40 micrograms, and choline 130 mg.

At least 14 vitamins which have been isolated and crystallized have been found essential to the diet of the dog, reported Dr. Walter C. Russell of the New Jersey Agricultural Experiment Station's Department of Agricultural Chemistry, located at Rutgers University.

#### How the Monkey Helps

Monkeys, of late, have received increasing attention as laboratory animals, and the problem of keeping them in good health on a standardized diet was discussed by Drs. C. A. Elvehjem and K. B. McCall of the Department of Biochemistry of the University of Wisconsin.

Young Rhesus monkeys grow and develop satisfactorily when they are allowed to help themselves to a purified diet consisting of 73 parts sucrose, 18 parts vita-



**LABORATORY PETS**—Rats such as those shown drinking water are favorites for nutrition studies since they thrive on the same food as man.

min-free casein, 4 parts of certain mineral salts, 3 parts cod liver oil and 2 parts corn oil, supplemented by thiamin, riboflavin, pyridoxin, calcium pantothenate, niacin, vitamin C and a few other vitamin chemicals.

If they continue for a long period on this super-refined diet, however, they become slightly anemic, and, like their human cousins, find their red blood count improved by the addition of liver. Monkeys in the wild state do not, of course, use liver in their diets. But neither do they live on the kind of refined, vitamin-free diet given as the basis of experimental diets so that measured amounts of crystallized vitamins may be added to observe the difference they make in the condition of the animals.

Each vitamin removed from the monkey's diet shows up as a distinct kind of imbalance, which can be cured by putting back the specific vitamin required. If, after a long period on such a highly artificial diet, the monkey becomes anemic, the researchers find they can cure it by adding either liver or fresh milk to the menu.

#### New Animals Used

Among the newer animals grown as laboratory colonies, are cotton rats and hamsters. These small rodents, used for dental caries, virus and diphtheria studies, are reported to be more excitable than white rats, and therefore to need more careful handling. The hamster,

which has been studied by Dr. B. S. Schweigert of the Nutrition Laboratory of the Texas Agricultural Experiment Station, is reported to grow satisfactorily on thiamin, riboflavin, pantothenic acid and vitamin B<sub>6</sub>, but to require additional vitamins for successful reproduction and lactation.

*Science News Letter, November 2, 1946*

## ATOMIC ENERGY CONTROL

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## Do You Know?

*Foxes* sometimes play dead in an attempt to escape enemies.

*Strawberries* keep better if picked in the morning while still wet.

*Cellulose* exists in almost pure form in cotton.

*Egg albumen* substitutes were produced in Germany during the war from waste fish and from poor-quality milk and whey.

About one-third of the *lambs* born never reach market; better care at birth, proper feeding and control of parasites could reduce this loss.

*Vanillin*, within the past decade, is obtained from lignin, a by-product of pulp and paper mills, lignin from coniferous woods being used chiefly; after purification the product has fine vanilla aroma.

Due to conversion of some of the great *explosive plants* to fertilizer production, farmers are now being assured the largest nitrogen supply for their crops they have ever had.

In the two states of Oregon and Washington there is enough commercial *saw timber* at present to build 73,000,000 five-room houses, or two houses apiece for every family in the United States.

*Crude fats* are being used since the war for making high-grade soap and soap flakes; formerly used only for harsher laundry soaps, a process involving the use of sodium chlorite now gives them wider use.

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**SUBMARINE JEEP**—"Deep-water fording kits" equip jeeps for under-water operation at beaches and in fording streams. The jeep is made operable in water one foot higher than the hood for a period of 15 minutes. (See SNL, Oct. 26.) Official U. S. Navy Photograph.

AERONAUTICS

## Planes Made of Plastic

Glass fiber plastic wings for planes meet strength tests. Operational advantages include efficiency for high speed, heat resistance and resiliency.

➤ AIRPLANES of the near future may be made of glass—not the windowpane variety, but glass fiber bonded in resin to form a strong plastic.

Wings of this material, designed and constructed by the Army Air Materiel Command, have now proved in flight that they meet all strength requirements and have other advantages.

A fuselage of the same material has satisfactorily passed service flight tests covering hundreds of flying hours both in the United States and in Alaska.

An all-glass-fiber airplane is the acknowledged objective of Army aviation engineers. The all-glass fiber fuselage tested 50% stronger on a strength-weight basis test than the standard metal fuselage. The all-glass-fiber wing withstood 105% of the required load without any buckling or wrinkling occurring in its glass-like surface.

The plastic used is composed of 55% glass fiber and 45% resin. The basic process involved in the fabrication of a laminated glass wing is relatively simple. Cloth woven from glass fiber is impregnated with resin in a simple semi-automatic coating machine. Layers of this are

laid in an inexpensive mold conforming to the finished contour of the wing.

Strips of light-weight cellular cellulose acetate are wrapped with a thin layer of glass cloth to form a core of a sandwich construction. Next, additional sheets of the impregnated glass cloth are laid over the core to complete the sandwich. Heat and pressure are then applied. The completed new wing, which is made in two halves and then bonded together, provides a clean interior entirely free of the ribs and cross-bracing of conventional metal wings.

Operational advantages of the glass fiber wings include efficiency for higher speeds because the glass-like surface has none of the rivets and joints of metal wings. Also, their greater rigidity results in smoother flow of air over their surfaces.

Other features of the glass wing include heat resistance and resiliency, which will perhaps make it adaptable for supersonic speeds. Its electrical characteristics make it particularly suited for applications in the construction of pilotless planes directed by radar.

Science News Letter, November 2, 1946



GENERAL SCIENCE

# UNESCO Project Proposed

International student exchange is urged as an aid to world peace, and the work of UNESCO is described to the National Academy of Sciences.

► INTERNATIONAL exchanges of students, with large numbers of young men and women from foreign universities attending American institutions while American youth studies abroad, is one of the most important contributions to world peace that can be made under the UNESCO setup, declared Prof. Robert Andrews Millikan of the California Institute of Technology, before the closing session of the National Academy of Sciences meeting.

Something of the kind was contemplated under the old League of Nations' committee on international cooperation, Prof. Millikan recalled, from his long service with the scientists of other nationalities. It failed of fruition partly because of the onset of worldwide hard times in the 1930's, but more fundamentally, he feels, the failure was due to the refusal of the United States to participate in the League after we had been largely instrumental in its creation. The fact that we have definitely committed ourselves to permanent participation in the program of the United Na-

tions, he added, "makes the future bright with hope."

The present work and future hopes of UNESCO were outlined before the meeting by Prof. W. A. Noyes, Jr., of the University of Rochester. In prewar days, he pointed out, the political isolationism of this country tinged our attitude toward international cooperation in scientific and intellectual fields; Americans participated in the work of international scientific unions, but primarily as individuals.

This is radically changed now; this country is committed to as full participation in the educational, scientific and cultural activities of the United Nations as any other member. There is a seven point program ready for action, as soon as the formal tasks of organization can be taken care of. It calls first for hastening the work of scientific rehabilitation in the devastated areas of the world, and at the end looks forward to the undertaking of new international scientific projects.

*Science News Letter, November 2, 1946*

PSYCHOLOGY

## "Mental Bugs" Itch, Bite

► MORE PATIENTS suffer from the mental delusion of having bugs on their skin than is generally realized, two University of California Medical School skin specialists believe. The specialists are Dr. J. Walter Wilson, now of Los Angeles, and Dr. Hiram E. Miller.

The person who suffers from this delusion should see a psychiatrist, not a skin specialist, they advise.

The two physicians found only 45 cases reported in medical literature, and added six cases they had seen personally. They said the delusion is more widespread than these figures indicate.

Nearly all patients with the ailment report that their nonexistent parasites itch, while other common activities of the imaginary bugs are crawling, creeping, biting, scratching, sticking, digging, burning, knocking, and clicking.

Drs. Watson and Miller said that the ailment is an indication of a deep-seated mental illness, such as psychosis, involutional melancholia and paranoia. Most susceptible to treatment by the psychiatrist are the cases of psychosis which are caused by alcohol or drug addiction, and involutional melancholia, the mental deterioration which sometimes occurs in middle and old age.

The physicians found that many patients went to great extremes to rid themselves of their mental bugs. One slept on a clean white cloth on a wooden bench, the better to keep clean. One woman soaked her head in kerosene night and morning, bathed every day, and scraped her body with a knife.

Youngest of the patients with the delusion was 30, while most of them were in their 40's and 50's.

*Science News Letter, November 2, 1946*

## The Art of RUSSIA

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## MINERALOGY

## International Mineral Control May Check War

► INTERNATIONAL knowledge of where minerals are, and international control of their distribution, may serve as a brake on the waging of war, suggested Prof. C. K. Leith, University of Wisconsin geologist.

Realization of the vital military importance of certain key minerals is at present causing some of the nations that have them to be very reluctant to let go of them. Some of the possessing powers have gone so far as to nationalize their critical mineral resources and place an embargo on exports. Other controls are less drastic.

Admitting that "as yet, anything approaching agreement on any form of international control of minerals remains in the field of wishful thinking," Dr. Leith nevertheless expressed the conviction that such controls will eventually come, and he sees a worldwide trend toward it, regardless of political ideologies or conditions of war or peace.

*Science News Letter, November 2, 1946*

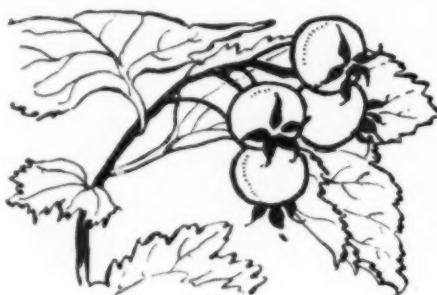


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## Neglected Natives

► WITH AUTUMN well advanced, and most leaves fallen, now is a good time to look about and take stock of the offerings of our native trees and shrubs. There is a great abundance, but nobody seems to want more than a nibble of it.

A peculiarly American tree, at least so far as edible fruits are concerned, is the hawthorn. Some of our species produce soft-fleshed haws that are really a unique experience in tangy taste; yet except for omnivorous small boys, and a very little local jam-making, they are neglected altogether. It should be worth some patient plant breeder's time to work on this fruit with an eye to larger size, and perhaps better resistance to worminess.

Every year our wild crabapple trees produce immense crops of fruit, practically none of which gets eaten. There is good enough cause for this neglect, for these wild crabapples are very hard, and overloaded with puckery tannin besides. Yet our prize Jonathans and Wealthies and Grimes Goldens came from Asiatic ancestral stock that was not much better to begin with.

Our wild persimmons really are appreciated, though never systematically cultivated. When American orchardists decided to grow persimmons, they sent to Japan for trees that produce fruits that get to be as big as baseballs, though the flavor is scarcely equal to that of our native species.

American wild grapes have fared rather better. Several native species, notably in the East and Southeast, are really quite good in their wild state; with selection and intercrossings they have provided such standard cultivated

stocks as Concord, Scuppernong and Catawba. Even European viticulturists have not been too proud to introduce American strains into their hybrids.

Only one native American nut tree, the pecan, has won its way into large-scale cultivation. Its botanical second cousin, the shellbark hickory, has meat that is at least as good; but there are no shellbark "orchards." Nuts with thin, easily cracked shells seem to be the decisive factor, for we also find our native black walnut, with delicious meat but a casehardened shell, left uncultivated while thousands of acres on the West Coast are planted to the English walnut, which is easily opened but not nearly as good eating.

*Science News Letter, November 2, 1946*

## GENERAL SCIENCE

## Science and Art Are Allies, Not Competitors

► POETS, ESSAYISTS, humanists generally should lay aside their traditional aversion to exact science, an astronomer told the Princeton bi-centennial conference on the humanities in Princeton.

Dr. Harlow Shapley, director of Harvard College Observatory and president of Science Service, confessing that he had at one time aimed at a literary instead of a scientific career, declared that the sciences and the humanistic tradition are not too far apart, "if we lop off or ignore at one end the unthinking mechanist and at the other end the unthinking dilettanti."

"The sympathetic approach by the non-scientist toward the contents and goals of science should pay well in units of philosophic comprehensiveness as well as in artistic material," Dr. Shapley said.

Our introspective artist should reorient himself in the content of present human knowledge, Dr. Shapley argued. He should contemplate deeply, not superficially, "the vibrant oscillations in the electron tubes, the geometries of protein structure, the sculpture of beetle backs, and the majesty of the cosmic processes that play with bursting stars, with radiation that penetrates bones and iron, with time-scales for galactic evolution that tempt the unwary to speculate on creation."

The artist would then find, Dr. Shapley assured the conference, that modern science is his cooperative ally, and not his heartless opponent.

*Science News Letter, November 2, 1946*



# Books of the Week

**ANTIBIOTICS:** Parts I and II—Roy Waldo Miner, Ed.—*New York Academy of Sciences*, 187 p., illus., tables, and graphs, \$2.50. Vol. XLVIII, Art. 2.

**THE ART OF RUSSIA**—Helen Rubissow—*Philosophical Library*, 32 p., 160 full-page illus., \$6. This volume offers for the first time a comprehensive selection of Russian paintings, from the 14th Century icons to works of recent Soviet artists.

**AS HE SAW IT**—Elliott Roosevelt—*Duell, Sloan & Pearce*, 270 p., \$3. The story of Franklin D. Roosevelt's global thinking and of the aims behind the conferences that shaped the victory and set the framework of the peace. Based upon discussions, notes, correspondence, first-hand observations and intimate talks with FDR, it discloses a great number of new, astonishingly revealing facts about him.

**A CATALOG OF PROVISIONAL COORDINATE NUMBERS FOR THE METEORITIC FALL OF THE WORLD**—Frederick C. Leonard—*Univ. of New Mexico Press*, 54 p., \$1. Univ. of New Mexico Publications in Meteoritics, No. 1.

**THE CENTENNIAL OF SURGICAL ANESTHESIA**—Compiled by John F. Fulton, M.D., and Madeline E. Stanton—*Schuman's*, 102 p., illus., \$4. An annotated catalogue of books and pamphlets bearing on the early history of surgical anesthesia, October 1946.

**ESSAYS ON GROWTH AND FORM**—W. E. Le Gros Clark and P. B. Medawar, Eds.—*Oxford*, 408 p., illus., tables, and graphs, \$6. This volume of essays is published as a tribute to D'Arcy Wentworth Thompson on the occasion of his completing sixty years as a professor. They have been prepared by his fellow workers in only one of the fields which he has made his own, namely that covered by his treatise, *ON GROWTH AND FORM*.

**FOR THIS WE FOUGHT**—Stuart Chase—*Twentieth Century Fund*, 123 p., \$1. The author of this book examines the goals that Americans want for their country, emphasizes our abundant power to produce, and gives his ideas on how we should organize to establish prosperity and preserve peace in the atomic age. No. 6 and

final report in the series *WHEN THE WAR ENDS*.

**THE MAGIC OF NUMBERS**—Eric T. Bell—*Whitlessey House*, 418 p., \$3.50. The author has made this book much more than a specific search for origins of mathematical thought. In its entirety it becomes a human history of the development of numerical theory, a living biography of the men who played and are playing such a great part in our scientific and philosophical development.

**MAKE-OVERS FROM LEATHER, FUR, AND FELT**—Clarice L. Scott—*Gov't Printing Office*, 16 p., illus. and diagrs., paper, 5 cents. U. S. Dept. of Agriculture Misc. Pub. 614.

**MERRILLEANA**—Elmer D. Merrill—*Chronica Botanica*, 266 p., plates and illus., paper, \$4. A collection of studies in the method and history of biology and agriculture. *Chronica Botanica*, Vol. 10, No. 3/4.

**A MEMOIR TO THE ACADEMY OF SCIENCES AT PARIS ON A NEW USE OF SULPHURIC ETHER**—W. T. G. Morton—*Schuman's*, 24 p., \$1.50. Historical Library, Yale Medical Library Publication No. 14.

**MY EYES HAVE A COLD NOSE**—Hector Chevigny—*Yale Univ. Press*, 273 p., \$3. In this book the author tells the complete story of his blindness, its onset, and how he has gone on with his profession of radio writing against the subtle and very powerful forces that tend to keep the blind and otherwise handicapped as protected wards of society instead of people who are often capable of making their own way.

**PSYCHOLOGY IN ACTION**—Joseph Clawson—*Macmillan*, 289 p., illus., \$4. This book offers unique help to the person who wants to understand human nature and to influence the behavior of others.

**RADIO'S CONQUEST OF SPACE: The Experimental Rise in Radio Communication**—Donald McNicol—*Murray Hill Books, Inc.*, 374 p., diagrs. and illus., \$4. Here is the personalized history of what we know today as radio. It is the story of the men whose skill and imagination produced the inventions and refinements that have made radio a vast peacetime business and a formidable wartime weapon.

**SCIENTISTS AGAINST TIME**—James P. Baxter, 3rd—*Little, Brown and Co.*, 473 p., illus., \$5. This book reveals the official inside story of the Office of Scientific Research and Development. It tells of the plans, the hopes, the endless experiments, the unremitting labor that lay behind the ultimate success of our scientists in outstripping the enemy.

**SCRIPTURAL PSYCHIATRY**—Morris Braude, M.D.—*Frober*, 159 p., \$5. A popular presentation of an hitherto little explored source in mental hygiene.

*Science News Letter*, November 2, 1946

New sunflower seed, capable of producing 49% more oil than ordinary varieties has been developed in Canada.

## MEDICINE

### Three Weapons Fight Influenzal Meningitis

► WHEN a baby gets a mild or moderately severe attack of influenzal meningitis, streptomycin will save him. But if he has a severe attack, with injury to the brain cells, his doctor needs to use rabbit anti-serum and sulfadiazine with the streptomycin in an all-out attack.

This lesson, learned from experience with 25 babies ranging from five months to three years seven months in age, is reported by Dr. Hattie E. Alexander and Grace Leidy, of Columbia University College of Physicians and Surgeons, and Drs. Geoffrey Rake and Richard Donovick, of the Squibb Institute for Medical Research, in the *Journal of the American Medical Association* (Oct. 26).

Influenzal meningitis used to be 100% fatal. With the advent of sulfa drugs and antiserum, the mortality was reduced to about 30%.

*Science News Letter*, November 2, 1946

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# •New Machines And Gadgets•

✿ **CONVERTIBLE** rocking chair, recently patented, has rockers hinged to its front legs so that they can be swung upward between the four legs until their rear ends rest inside the chair's back. A convenient lever, operated by the occupant while sitting at ease, raises or lowers the rockers.

Science News Letter, November 2, 1946

✿ **PRECISION** plumb bob for carpenters and engineers has a spool on its upper neck which revolves to wind up the suspension cord. To use, the cord is pulled out to approximate length, then slipped under a hook on the top that holds it in an exactly centered position. The cord can be shortened by revolving the spool.

Science News Letter, November 2, 1946

✿ **AIR SPRINGS**, in pairs at each end of each axle on railroad passenger cars, look like small automobile tires lying in a horizontal position. The nine-inch-diameter rubber air containers are connected to an air reservoir that acts as a shock absorber when a wheel hits unevenness on the track.

Science News Letter, November 2, 1946

✿ **ADJUSTABLE** swing, to keep Johnny happy during shut-in days, is fixed in the door frame, as shown in the picture, so that it does not interfere with door action. The seat-height is adjusted by



clamps on the side straps. The swing can be unhooked from the cross arm when not in use.

Science News Letter, November 2, 1946

✿ **SEEING-EYE** for blind men is a nine-pound case the size of a loaf of bread that is carried in one hand. A beam of light projected from the case is reflected by an object ahead, picked up and converted by a photocell into code signals in the blind user's earphone.

Science News Letter, November 2, 1946

✿ **TRANSLUCENCY** meter, a new photoelectric instrument, measures more accurately than ever before the translucency of chinaware. This property in chinaware imparts its fragile beauty and is the buyer's criterion of quality. The instrument will aid ceramists in research and may be adaptable to production control.

Science News Letter, November 2, 1946

✿ **ARTIFICIAL EYE**, that moves in coordination with a person's good eye, is made of plastic with a mesh of tantalum metal covering its back portion. Mobility is obtained by sewing the eye muscles to the tantalum mesh. It can be implanted immediately after an injured eye is removed, or much later if desired.

Science News Letter, November 2, 1946

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N. St., N. W., Washington 6, D. C., and ask for Gadget Bulletin 335. To receive this Gadget Bulletin without special request each week, remit \$1.50 for one year's subscription.

## Question Box

### ARCHAEOLOGY

What is the earliest date found in the New World? p. 279.

### EDUCATION

What new use do blind persons have for their ears? p. 277.

### GENERAL SCIENCE

Of what relation are science and art? p. 286.

### MEDICINE

Is there anything to the rainbow wave drug? p. 280.

What new hope is there in cancer diagnosis? p. 281.

What new weapon fights influenzal meningitis? p. 287.

Why do scientists say there will never be a repeat of the 1918 flu epidemic? p. 275.

### METEOROLOGY

How does meteorology tie in with oceanography? p. 276.

### MINERALOGY

What sort of international control may help check war? p. 286.

### NUTRITION

Of what value are studies of animal nutrition needs? p. 282.

What amino acid was found to be unnecessary to man's diet? p. 275.

### PSYCHOLOGY

How do "mental bugs" annoy patients? p. 285.

Where published sources are used they are cited.

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